

**TOWN OF ASHLAND**

**Direct Testimony of John T. Hannigan**

**DTE 02-46**

1    **I.    INTRODUCTION**

2    **Q:    Please state your name, title and business address:**

3    A:    My name is John T. Hannigan. I am a Senior Associate at Vollmer Associates, 38  
4        Chauncy Street, Boston, Massachusetts 02111.

5    **Q:    What are your current responsibilities as Senior Associate for Vollmer**  
6        **Associates?**

7    A.    As a Senior Associate at Vollmer Associates, I am responsible for the oversight and  
8        management of Engineering and Administrative staff in the Boston office as well as  
9        technical/project management/mentoring assistance to Vollmer staff in all offices. My  
10       responsibilities include Civil Engineering, Environmental Engineering, Structural  
11       Engineering, Traffic Engineering, Landscape Architecture and GIS projects for State,  
12       Municipal and private clients.

13   **Q:    By whom were you most recently employed and in what capacity?**

14   A:    I have worked from January 1992 to present as Senior Associate/Principal for  
15        Vollmer Associates. Prior to that I worked at Whitman & Howard, Inc. from  
16        September 1972 to January 1992 as Vice President of Civil Engineering. During that  
17        same time period approximately from September 1972 to August 1992 I was a  
18        Commissioned Officer (Captain) in the United States Guard Reserve. From  
19        September 1968 to September 1972 I was on Active Duty as a Civil Engineering  
20        Officer in the United States Coast Guard.

1   **Q: Please describe your responsibilities on relevant projects on which you have**  
2   **worked?**

3   A: I am Principal-in-Charge of a Comprehensive Storm Water Management Plan in  
4   Ashland, Massachusetts for the Town of Ashland. As Principal-in-Charge, I am  
5   responsible for mapping a storm water collection system and drainage to be used in  
6   meeting the requirements of EPA Phase II Storm Water Rule; compiling, reviewing,  
7   and digitizing existing storm drain system record drawings and maps; and developing  
8   and executing GPS program to capture drainage features and implement them into  
9   final drainage GIS.

10   I am Principal-in-Charge of a Comprehensive Storm Water Management Plan in  
11   Canton, Massachusetts for the Town of Canton. As Principal-in-Charge, I am  
12   responsible for mapping a storm water collection system and drainage to be used in  
13   meeting the requirements of EPA Phase II Storm Water Rule, compiling, reviewing,  
14   and digitizing existing storm drain system record drawings and maps and developing  
15   and executing GPS program to capture drainage features and implement them into  
16   final drainage GIS.

17   I was Principal-in-Charge on the Phinney's Lane Roadway Reconstruction Project in  
18   Barnstable, Massachusetts for the Town of Barnstable. As Principal-in-Charge, I was  
19   responsible for developing final design plans, specifications, and contract documents  
20   for the full depth reconstruction of this scenic roadway. The design included  
21   horizontal and vertical geometric improvements, alternative intersection designs, and  
22   the design of a closed drainage system to control storm water run-off.

1 I am Principal-in-Charge on the Greenlodge Interceptor Sewer Replacement, Project  
2 in Canton, Massachusetts for the Town of Canton. As Principal-in-Charge, I am  
3 responsible for the design and preparation of plans and specifications for replacing  
4 approximately 10,000 linear feet of 18-inch diameter asbestos cement interceptor  
5 sewer. The existing sewer is undersized and plagued by numerous misaligned joints,  
6 sags, cracks, mineral deposits, and root intrusion. The replacement interceptor sewer  
7 will be 30-inch diameter ductile iron pipe. The project requires special attention to  
8 conservation issues because it lies entirely within wetlands and a portion lies in an  
9 endangered species and rare habitat area.

10 I am Principal-in-Charge on the Trayer Road Wastewater Pumping Station Project in  
11 Canton, Massachusetts for the Town of Canton. As Principal-in-Charge, I am  
12 responsible for the design and preparation of plans and specifications for a 150 gpm  
13 capacity self-priming pumping station to replace an antiquated pumping station. The  
14 project included a 6-foot diameter pre-cast concrete wetwell and connecting gravity  
15 sewer and force main piping.

16 I am Principal-in-Charge of the City of Boston Street Furniture Program in Boston,  
17 Massachusetts for Wall USA, Inc. (for City of Boston). As Principal-in-Charge, I am  
18 responsible for design of 3 Automated Public Toilets at City Hall Plaza, Puopolo  
19 Park, and Charlestown Navy Yard in the City of Boston. These pre-assembled toilets  
20 are the first of their kind in the United States, and required extensive permitting. The  
21 work included sewer, water, telephone, and electrical connections.

1 I am Principal-in-Charge of the Sewer Maintenance Management System in  
2 Westwood, Massachusetts for the Town of Westwood. As Principal-in-Charge, I am  
3 responsible for creating an electronic tracking system to store and retrieve data  
4 pertaining the Town's sewer system, including lines, manholes, pump stations, force  
5 mains and inverted siphons. Each item is linked with data relating to inspection  
6 reports and maintenance records which the Town is able to retrieve through a series  
7 of customized menu and macro file selections.

8 I was Principal-in-Charge of the Water and Sewer GIS in Canton, Massachusetts for  
9 the Town of Canton. As Principal-in-Charge, I was responsible for developing a GIS  
10 for all pertinent data on the Town's water and sewer systems. This system was  
11 developed to include information such as location, size, condition, and maintenance  
12 requirements for the Town's utilities. The system was also used to develop a Zoning  
13 Map, Water Protection Zone Map, and Assessor's Maps.

14 I was Principal-in-Charge of the Sewer Management System in Franklin,  
15 Massachusetts for the Town of Franklin. As Principal-in-Charge, I was responsible  
16 for developing a GIS system used to manage existing and future sewer components in  
17 the Town. Information included in the GIS are location, size, material, dates of  
18 construction and rehabilitation for sewer connections, pumping stations, force mains,  
19 gravity sewers, and manholes. All data can be accessed through a graphical map of  
20 the Town.

21 I was Principal-in-Charge of the Supervisory Control and Data Acquisition in Canton,  
22 Massachusetts for the Town of Canton. As Principal-in-Charge, I was responsible for

1 establishing a Supervisory Control and Data Acquisition (SCADA) computer system  
2 which will monitor and control the Towns' utilities and identify areas in need of  
3 improvement or maintenance. The system consists of sewer pumping stations, water  
4 storage tanks, motorized gate valves, and well stations, all controlled at multiple  
5 locations within the Town.

6 I was Principal-in-Charge of the Telemetry System in Franklin, Massachusetts for  
7 the Town of Franklin. As Principal-in-Charge, I was responsible for the expansion of  
8 an existing telemetry system to control and monitor the Towns' utilities. The  
9 system allows the Town to control and monitor utilities as well as acknowledge and  
10 disable alarms from offsite locations.

11 **Q: Where did you go to college, what degree do you have and when did you**  
12 **graduate?**

13 A: My education is as follows:

14 I obtained a Master of Business Administration from Northeastern University in  
15 1978. I obtained a Master of Science in Civil Engineering from the University of  
16 Wyoming in 1968. I obtained a Bachelors of Science in Civil Engineering from  
17 Merrimack College in 1967. I also obtained an Associate of Science in Civil  
18 Engineering from Wentworth Institute in 1963.

19 **Q: Do you belong to any associations?**

20 A: I am a member of the American Academy of Environmental Engineers (Diplomat). I  
21 am also a member of the Society of American Military Engineers (Fellow; Regional  
22 Vice President), the American Society of Civil Engineers (Fellow), the American  
Water Works Association, the New England Water Works Association New England

1 Water Works Association, the New England Water Works Association New England  
2 Water Pollution Control Association, the Water Environment Federation; and the  
3 American Public Works Association.

4 **Q: When did Ashland retain Vollmer Associates? For what purpose?**

5 A: Ashland retained Vollmer in November 2001 to evaluate the SEA Consultants, Inc.'s  
6 May 2001 Sewer Rate Assessment Study ("SEA Report").

7 **Q: Are you familiar with the InterMunicipal Agreement dated December 9, 1963**  
8 **(the "IMA") governing Ashland's use of Framingham's sewerage facilities which**  
9 **was signed by representatives of both Ashland and Framingham?**

10 A: Yes.

11 **Q: What did the IMA provide?**

12 A: The IMA was an agreement between Ashland and Framingham which detailed  
13 Ashland's usage of certain sewers of Framingham which were to be used for the  
14 transportation of Ashland's sewerage to the sewers of the Metropolitan District  
15 Commission (which is now the Massachusetts Water Resources Authority  
16 ("MWRA")).

17 Specifically, the IMA permitted Ashland to connect its sewerage system to the  
18 Framingham system at the Farm Pond intercepting sewer. Ashland's use of the  
19 Framingham system was to be limited to a maximum rate of discharge of 2.0 million  
20 gallons per day (or 1400 gallons per minute) of Ashland sewerage with the exception  
21 that momentary discharge rates are not to exceed 2.5 million gallons per day (or 1750  
22 In consideration of this usage, Ashland is to pay Framingham an annual charge of  
23 \$3,000 for the usage of up to one million gallons of the average daily flow of Ashland

1 sewerage. If Ashland sewerage exceeds one million gallons, Ashland agreed to  
2 compensate Framingham in addition to the \$3,000.00 annual charge a charge at a  
3 charge of \$2,000 for actual usage above one million gallons of average daily flow.

4 **Q: Does the IMA permit Ashland to connect to Framingham's sewerage system at**  
5 **any other points?**

6 A: Yes. The IMA permits Ashland to connect to the Framingham sewerage system at  
7 the 12" sewer located at the Boston and Albany Railroad at the junction of the Bates  
8 Road. Ashland's usage at this connection is limited and restricted to a maximum rate  
9 of discharge of 200 gallons per minute of Ashland sewerage. Ashland agreed to pay  
10 Framingham \$2,500 in exchange for this usage.

11 **Q: Did the IMA permit the parties to review and renegotiate these charges and**  
12 **rates?**

13 A: Yes. The parties agreed that the annual charges and rates of discharge specified in the  
14 agreement were to be reviewable five years from the date of this agreement and at  
15 subsequent five year intervals.

16 **Q: Did the IMA specify how it could be terminated?**

17 A: Yes. The IMA stated that it could terminate "when and if and at such time as Town  
18 of Ashland shall directly enter the Metropolitan District Commission system (it is  
19 now the MWRA as I stated above) at which time the obligations of either party  
20 hereunder shall terminate."

21 **Q: Has Ashland entered the MWRA system directly?**

22 A: No.

1    **Q: Has Framingham produced to the DTE any documents which were exchanged**  
2    **between Ashland and Framingham prior to December 9, 1998 pertaining to**  
3    **“annual charges and rates of discharge” to be applied after December 9, 1998?**

4    A: None that I am aware of.

5    **Q: What did SEA’s Report state?**

6    A: SEA attempted to determine what was Ashland’s “fair and equitable proportionate  
7    share of the actual cost of the maintenance of the system” (“Ashland Cost”) as  
8    required by the IMA. SEA determined that this should be measured by taking the  
9    Ashland flow of sewerage as compared to the total Framingham sewer system flow  
10   multiplied by the actual costs of maintaining the Framingham system less capital  
11   expenditures, MWRA fees and pumping station costs. SEA’s formula as detailed  
12   below yielded \$203,000 as Ashland’s Cost:

13	<b>Ashland Flow = (0.77)</b>	
14	<hr/>	<b>X Framingham O&amp; M Costs (\$2,316,814)</b>
15	<b>(Framingham Flow (8.023)</b>	
16	<b>+ Ashland Flow (0.77) =</b>	
17	<b>Total Flow= 8.793)</b>	

18   **Q: What did Vollmer determine?**

19   A: Vollmer stated that Ashland’s proportionate share of operation and maintenance  
20   (O&M) cost should be based on only the sewers that it shares (Farm Pond Interceptor,  
21   Bates Road Sewer and Beaver Dam Interceptor). In its report, Vollmer estimated that  
22   its proportionate share of the O&M cost for the shared sewers was approximately  
23   \$16,858.00. This is based on the product of the portion of the Framingham system  
24   that Ashland uses (3.04%), Ashland’s portion of Interbasin Transfer Allocation  
25   compared to the total of Framingham’s plus Ashland’s Interbasin Transfer Allocation



1 (11.19%) and the operating budget for the gravity sewer system (\$4,957,656).  
2 Vollmer utilized the \$4,957,656 figure provided by Framingham's Department of  
3 Public Works to Ashland in August and October 1998. Vollmer later adjusted its  
4 calculations by using the O&M costs provided by SEA in table 4.1 of its 2001 report  
5 to Framingham and utilized the O&M costs of \$2,316, 814 provided therein.

6 **Q: How did Vollmer determine the formula you just described?**

7 A: The formula Vollmer used was as follows:

8 **(3.04%) (the percentage of total inch-miles of sewerage pipeline that are**  
9 **actually used by Ashland) X (11.19%) (the ratio of Ashland's Interbasin**  
10 **Transfer Allocation (3.20 MGD) / Total of Ashland's Interbasin Transfer**  
11 **Allocation (3.2 MGD) + Framingham's Interbasin Transfer Allocation**  
12 **(25.39)) X Framingham's O&M costs = Ashland's proportionate share of**  
13 **operation and maintenance (O&M) cost.**

14 This formula was derived from Framingham's Department of Public Works' Director  
15 and Water and Sewer Superintendent and shared with Ashland in faxes dated August  
16 6, 1998 and October 21, 1998.

17 **Q: Is Ashland billed directly by the MWRA for transport and treatment of its flow**  
18 **at MWRA facilities?**

19 A: Yes.

20 **Q: Does Vollmer agree with Framingham's formula as proposed by SEA?**

21 A: No. Vollmer disputes the premise for Framingham's calculations and Vollmer  
22 disputes Framingham's ultimate determination that Ashland's "fair and equitable  
23 proportionate share of the actual cost of the maintenance of the system" that Ashland  
24 uses ("Ashland's Cost) should be \$203,000 or higher. Framingham bases its formula  
25 above solely based on a percentage of sewerage flow through the entire Framingham

1 system. However, Ashland does not use the entire Framingham system.

2 **Q: What parts of the Framingham system does Ashland use?**

3 A: Ashland utilizes from Arthur Street to Beaver Street, Beaver Street to Waverley  
4 Street, Waverley Street to the Farm Pond Connection, Beaver Street to Herbert Street,  
5 Herbert Street to Eames Street and Eames Street to Guild Road. I will refer to these  
6 as the “shared sewer pipelines.”

7 **Q: So does Ashland utilize Framingham’s entire sewerage system?**

8 A: No. Ashland only utilizes these few specific pipelines mentioned above.

9 **Q: Do these pipelines interact with the rest of Framingham’s sewerage system or do**  
10 **they flow directly to the MWRA?**

11 A: These pipelines flow directly to the MWRA and do not interact with the rest of  
12 Framingham’s sewerage system.

13 **Q: Which of the segments you mentioned are operated and maintained by Ashland?**

14 A: None of these segments is operated and maintained by Ashland.

15 **Q: Does Ashland simply utilize Framingham’s pipes in these segments or does**  
16 **Ashland utilize pump stations and other infrastructure?**

17 A: Ashland simply utilizes the pipe segments. Ashland does not utilize any pump  
18 stations or other infrastructure which is part of the Framingham system.

19 **Q: How does Ashland propose that Ashland’s Cost (its “fair and equitable**  
20 **proportionate share of the actual cost of the maintenance of the system”) be**  
21 **calculated? Does Vollmer agree with this proposal?**

22 A: Ashland contends that Ashland’s Cost should be based on proportionate flow through  
23 those sewer pipes actually used and not simply on percentage of sewerage flow as if  
24 Ashland were using the entire Framingham system. Ashland should not be

1 responsible for the operation and maintenance of Framingham's entire system. Based  
2 on this method, Ashland's Cost determined by this formula yields an Ashland Cost of  
3 \$7,881.00. This is the same formula proposed by Vollmer and which, as I have  
4 mentioned, was originally provided to Ashland in 1998 by Framingham:

5 **Percentage of Ashland's Usage of Inches/Miles of Framingham Sewerage**  
6 **Pipe (3.04%) X**

7 **Ratio of Ashland's InterBasin Transfer allocation (3.20 MGD) X**  
8 **Framingham's (28.59 MGD)**

9 **Framingham's O&M cost (\$2,316,814)**

10 Unlike SEA's formula which is based on percentage of flow and yielded an Ashland  
11 Cost of \$203,000, Ashland's formula based on shared sewer use yields an Ashland  
12 Cost of \$7,881.00. Vollmer agrees with this proposal.

13 **Q: Why do you believe that this method of calculation is more appropriate than**  
14 **that determined by Framingham?**

15 **A:** Ashland proposed formula is more appropriate because it is more accurate. Ashland  
16 is a wholesale customer to Framingham. Framingham and Ashland agreed to the cost  
17 of Ashland's usage of Framingham's sewerage system on a blanket basis.  
18 Framingham did not seek to calculate and charge the cost of usage of its system to  
19 each of Ashland's citizens. Rather, it is understood that Ashland's usage of  
20 Framingham's system was at a cost which Framingham knew that Ashland would  
21 then bill out to its citizens.

22 Further, Framingham should not be permitted to treat Ashland just like a Framingham  
23 citizen who is billed at a standard rate which is applied to all Framingham citizens  
regardless of how much or how little pipeline and infrastructure each citizen actually

1 regardless of how much or how little pipeline and infrastructure each citizen actually  
2 uses. Unlike with Framingham citizens, it is not too onerous to determine Ashland's  
3 actual pipeline usage and actual proportionate flow through those shared pipeline  
4 segments. By using actual inch-miles of sewer and a proportion of actual Ashland  
5 flow to Framingham flow through those specific shared segments, a more accurate  
6 measurement can be obtained.

7 **Q: What is the significance of the ratio of Ashland's InterBasin Transfer Allocation**  
8 **("ITA") to Framingham's ITA?**

9 A: As I have already stated, Ashland should be only responsible for the cost of operating  
10 and maintaining those 85.89 inch/miles of sewer pipe segments that it actually uses.  
11 Further, Ashland should not be responsible for entire cost to operate and maintain  
12 these shared sewer pipe segments because these are shared sewer pipe segments.  
13 Both Ashland's and Framingham's sewage flows through these shared sewer pipe  
14 segments. Ashland should only be responsible for the cost of operating and  
15 maintaining the shared sewer pipe segments with Ashland's proportionate sewage  
16 flow through these pipes taken into account as well.  
17 Unfortunately, to date, we do not have measurements of Ashland's and  
18 Framingham's respective percentage of flow through these shared sewer pipe  
19 segments. As an alternative, Ashland proposed using the ratio for the maximum  
20 allowable flow indicated in its ITA (3.20 MGD) in comparison to the total of  
21 Framingham's and Ashland's ITA (28.59).

1     **Q: Should Ashland be responsible for future capital costs to the shared pipelines**  
2     **segments?**

3     A: Vollmer believes that if Ashland is to be responsible for such costs, it should be  
4     responsible for only a fair and equitable proportionate share of the costs of repairs as  
5     well as capital improvements to those parts of the system that Ashland directly  
6     utilizes but only to the extent that such capital improvements are a direct and current  
7     benefit to Ashland. For example, Ashland should not have to pay for capital costs  
8     due to Framingham's decision to increase the size of the pipeline due to changes in  
9     Framingham's flow. This statement is conditioned upon Ashland having input into  
10    and veto power over all such capital improvement decisions. Ashland proposes that  
11    such repairs and capital improvements should be calculated based on the cost for such  
12    repairs and capital improvements multiplied by the ratio of Ashland's average daily  
13    flow through the directly affected pipe segment to Framingham's average daily flow  
14    through the directly affected pipe segment. Of course, Ashland should not be  
15    responsible for payment of cost to Framingham where Framingham can or has  
16    obtained governmental funding for the cost of repair and/or capital improvements.  
17    Vollmer questioned the "Approximately Ashland Use %s" values in Table 6.2 of the  
18    SEA Report. It is not evident how the percentages of use were derived and SEA has  
19    failed to clarify this. Vollmer believes that a fair and equitable capital value should  
20    be based on the capacity of the pipe, i.e., the proportion of IMA flow to full flow  
21    capacity. SEA's Report indicates that the full flow capacity of the Farm Pond  
22    Interceptor and the Beaver Dam Interceptor is 15.0 MGD and 2.0 MGD, respectively.  
The average flow in the Farm Pond Interceptor and the Beaver Dam Interceptor is

1 The average flow in the Farm Pond Interceptor and the Beaver Dam Interceptor is  
2 0.63 and 0.12 MGD, respectively. Therefore, the “Approximately Ashland Use %  
3 would be 4.2% for Farm Pond Interceptor and 6.0% for Beaver Dam Interceptor.  
4 These values used in Table 6.2 would result in a buy-in value of \$214,000 v.  
5 \$767,500.

6 **Q: The SEA Report states that the new IMA should contain a formula to establish**  
7 **Ashland’s proportionate share for capital repairs for infrastructure related to**  
8 **the conveyance of Ashland IMA flows in the Framingham sewer system. The**  
9 **cost would be based on the product of the ratio of Ashland IMA Peak Flow in**  
10 **the sewer to Framingham Peak Flow in the facility and the Actual Construction**  
11 **Cost. Do you agree with this recommendation?**

12 A: We agree with proportioning cost of “capital repairs” based on flow (and shared  
13 segment usage versus usage of the entire Framingham system), but question whether  
14 it should be based on peak flow. The study states “the IMA currently guarantees  
15 capacity to the peak level.” This language is not in the current IMA. The IMA  
16 makes reference to “limited and restricted to a maximum rate of discharge.”  
17 Maximum flow should not be construed to mean peak flow as they have different  
18 meaning. Maximum flow is defined as the “maximum daily flow rate that occurs  
19 over a 24-hour period based on annual operating data.” Additionally, the study says  
20 that “capital maintenance” should be apportioned on the basis of peak flow “in order  
21 to handle peak flows generated by Ashland.” Vollmer does not believe that there  
22 should be a distinction made for capital repairs to handle peak flow. The  
23 proportionate share of capital repair costs should be for all capital repairs to shared  
24 sewers, whether it’s to provide additional capacity or not. We suggest a fair and  
equitable share of the capital repair cost should take into account a proportion of

1 equitable share of the capital repair cost should take into account a proportion of  
2 average daily flow.

3 **Q: Is Vollmer aware of any governmental funding received by Framingham to pay**  
4 **for the Framingham's sewer rehabilitation costs in the past?**

5 A: Vollmer has learned from the DEP that Framingham received State Revolving Funds  
6 for sewer rehabilitation in 1991 and 1994 in the amounts of \$420,000 and \$411,000  
7 respectively. While Vollmer and Ashland suspect that Framingham has received  
8 additional funding for repairs and capital costs, Framingham has not been  
9 forthcoming with this information.

10 **Q: Is Vollmer aware of any other governmental funding provided to Framingham**  
11 **to pay for Framingham's sewer rehabilitation costs?**

12 A: Framingham has responded that it has been "unable to determine" this information.

13 **Q: Are you aware of any actual harm caused to Framingham's sewerage system**  
14 **caused by the emission of hydrogen sulfide into Framingham's sewerage system?**

15 A: No.

16 **Q: Are you aware as to whether the IMA addresses the exclusion of hydrogen**  
17 **sulfide or any other natural substances contained in sewerage material?**

18 A: The IMA does not exclude sulfide of any other natural substances contained in  
19 sewerage material.

20 **Q: Does the IMA address the emission of hydrogen sulfide contained in sewerage**  
21 **material?**

22 A: The IMA states that Ashland agreed to indemnify and hold harmless Framingham  
from "any and all increased charges levied against the Town of Framingham, if any,  
by the Metropolitan District Commission (now the MWRA). . . ."

1     **Q: Are you aware of any increased charges levied against Framingham by the**  
2     **MWRA as a result of Framingham's permitting Ashland to use its sewer trunk-**  
3     **lines?**

4     A: No. In fact, a MetroWest Daily article dated November 21, 2002 specifically stated  
5     "State regulators have agreed not to levy stiff fine against the town for exceeding  
6     sulfide levels in sewer system, potentially saving the town thousands over the next  
7     several years. In an agreement between the town [of Framingham] and the  
8     Massachusetts Water Resources Authority, the state agreed to hold back on the fines,  
9     provided the town make a good faith effort to solve the problem."